

# Beyond Waste:

## Harnessing the Potential in Weaving waste.

During my visits to nearby weaving clusters as part of courses at NID AP, I have observed considerable amount of waste from the weaving process is produced in the form of yarn waste. This waste is primarily used to clean the trucks/lorries especially the combustible engine and its parts that accumulates dust and oil. (Establish and validate the reasons). This yarn waste eventually reaches the landfill and its properties in context to biodegradability are reduced due to accumulated dust, grease and oil.

Every handloom weaving sector produces inevitable waste mostly in the form of warp yarn waste which further can not be woven

# Observational Points

- **Mangalagiri sector:**

How is the waste yarn generated and how is it used/was used?

how can it be used?

What happens to the yarn after lorry people have used it for cleaning?

What are the systems various involved in it before and after it goes into the hands of lorry drivers ?

why do they use these yarns to clean lorry and not fabric?

What would be an effective alternative given to these lorry drivers instead of these yarns?

How much of it goes into landfill?

- Waste
- Where it goes
- Where can it go

- **Kondapalli toy sector:**

How are the toys packed?

How was the packaging done in olden days?

What kind of material is used in making the packaging for the toys?

what are the different kind of packaging used in this cluster?

What could be an alternative to the existing packaging using the waste generated in mangalagiri weaving sector?

How can be the packaging be further used preventing it from going into landfills?

- Packaging
- How is it done
- How can it be done

# Secondary Research

- Mangalagiri Sarees and fabrics are made of pure cotton Yarn.
- The material is durable and are produced in the Mangalagiri region near Guntur region of Andhra Pradesh.
- Though Mangalagiri weavers started their weaving with sarees, in more recent times, the cotton fabric itself has gained wide acclaim due to its colour variants, economical pricing, and environmentally friendly qualities.
- The fabric is made in resplendent colours and also in vibrant short colours-combination of two or more colours which give a special sheen to the material.
- These features make Mangalagiri unique and outstanding.
- Durability and softness are the hallmark of Mangalagiri fabrics.

- **Pure cotton yarn**
- **Vibrant Colours**
- **Soft yet Durable**

- **Small Size**
- **Vibrant Colours**
- **Expression of art**

- Kondapalli Bommalu are delightful expressions of art of rich traditional value made from the wood of 'Tella Poniki' also called 'White Sander' .
- The Toys and figures are of different sizes (usually the toys are made in the dimensions 8x5x4 inches and are not made beyond 15 inches, )and shapes.
- They portray various themes of village life and also spiritual themes.
- These toys made by the artisans conveying the said themes falls in three distinct category: 1. animals and birds, 2. male and female figures depicting rural life, 3. mythological figures.

# Primary Research

## Mangalagiri Weaving Sector

- Weavers start the day by winding sized yarn onto warp beam.
- Dyeing of yarn as well as sizing of yarn also takes place simultaneously in different part of the village.
- for dyeing, cotton yarn is usually sourced from tamil nadu and vat dyes are used
- Winding of hank yarn into warp and weft
- **Street sizing**- the warp is mounted on bamboo sticks and is extended to its full length. Then it is sprayed with rice con-jee to reinforce the fibres and make it amenable for weaving.
- **Weaving process**- the warp is mounted on a beam, and the weft which is in the Pirn is placed inside a shuttle and placed perpendicular to the warp beam. and is done using a pit loom.

### What are the unique qualities of yarn used in Mangalagiri weaving?

- Most materials including saree, kurta, dupatta, are made out of 80S warp and 80S weft
- Only bottom in salwar suit is made out of 60S X 40s.
- All Mangalagiri cotton fabrics, except the bottom, have about 100 warp threads and 100 weft threads per sq. inch.
- In case of bottom of Salwar materials, there are about 80 warp threads and 40 weft threads per sq. inch.
- Usually 36 meters warp is set to weave 5 sarees.

- **Cotton yarn**
- **80s count**
- **Vat dyes**

# Insights

1

- The waste yarn generated is usually taken by lorry/truck drivers to clean grease/oil and dust off the vehicle. after that the waste yarn along with grease/oil and dust ultimately goes to landfills.

2

- since vat dyes are used in dyeing, it becomes non environmental friendly and thus harms the environment went goes into landfills.

3

- traditionally people used the waste yarn generated into making ropes and cots. but it is no longer in practice. people are no longer interested in investing time into making such products and have replaced it with other materials

4

- once every 4-6 months a dealer comes and collects this yarn to sell it to lorry/truck drivers.

5

- weavers sell this waste yarn for 50-60 rupees per kilo.

7

- there's no colour segregation or any yarn separation takes place. everything is dumped in one place.

8

- lorry/ truck drivers prefer this yarn since its easier to clear (more surface area and fibrous compared to fabric), cheaper and traditionally they have been using this.

- **lorry/ truck drivers buy them to clean their lorries**
- **Vat dyes which are harmful for the environment are used in dyeing the yarn**
- **ultimately goes into landfills with dust and oil**

## Visit to Kondapalli Toy cluster

- Kondapalli Bommalu are made by a sequential process starting from the selection of good quality wood of Tella Poniki Trees till the toy is painted and dried.
- The process starts from Selection of Wood, Cutting and Seasoning .
- Cutting of wood Into Desired Sizes.
- Then, a "BAHUDARA" is used to carve the desired shape of the toy.
- The carved soft wood is then filed using a shaper so as to give it a better shape.
- Then the artisan joins the shaped wood pieces (i.e. glue them together) by using a locally prepared adhesive called temma jiguru.
- Final Stage : Concealment of signs and joints –
- This skeleton of the toy has rough and square edges. These edges are rounded to give the toy a smooth body by applying 'makku'. This gives final shape to the toy.
- The next step involved is the colouring of the toys. (In olden days, artisans used vegetable colours )

1

- Traditionally the toys were packed in a basket made out of coconut leaves, but due to lack of enough earnings and time the usage of such packing has reduced drastically

2

- The toys are usually wrapped in a newspaper. And this has been followed from many years

3

- To avoid breakage and to make it look more pleasing to eyes, artisans have started using cardboard boxes for the packaging.

4

- Bulk orders and international exports are also packed in huge cardboard boxes



total warp length set up= 36 meters  
total warp length used= 35 meters(5 sarees)  
wastage [inevitable]= 1 meter  
percentage of yarn getting wasted = 2.77%

**What can be done to prevent this waste going into landfills**

- To create a system where the yarn does not go to the landfills ultimately, thus increasing its life
- intervention in terms of creating products out of it and creating a business opportunity.
- using waste warp yarn as weft to create linear woven surfaces which later can be used in making products.

**What kind of Products?**

- Products such as:
- Packaging
  - Home furnishing
  - home decor
  - bags
  - pouches
  - Souvenirs



# Design Brief

- To explore innovative ways to repurpose the yarn waste produced in weaving sector and create surfaces which later can be used in making products thus preventing it from ending up in landfills. The focus will be on designing and producing functional and aesthetically appealing products using this yarn waste materials which can also be used for packaging in another cluster. The key objectives include reducing environmental impact, promoting circular economy principles, and raising awareness about sustainable consumption.

- **Target Audience:**

The target audience will depend on the specific product line, it can include environmentally conscious consumers, craft enthusiasts, and individuals interested in supporting sustainable initiatives. The products should appeal to a broad demographic and have the potential for commercial viability.

**Design Considerations:**

Explore different types of yarn waste, Consider factors like texture, durability, and color variations to maximize the visual appeal and functionality of the products.

Sustainability: Emphasize the use of 100% yarn waste or combine it with other eco-friendly materials to enhance the sustainability aspect of the products.

- **Functionality:** Design products that serve a practical purpose in daily life or fulfill specific needs, ensuring they are usable, durable, and well-crafted.

**Aesthetics:** Create visually appealing products that showcase the unique characteristics of the yarn waste materials, incorporating color patterns, texture variations, or innovative weaving techniques.

**Scalability:** Develop designs that can be easily replicated and scaled up for production to meet market demand.

Marketing and Branding: Consider branding and packaging strategies that highlight the sustainable nature of the products, educating consumers about the environmental benefits and encouraging responsible consumption.

- **Product Ideas:**

Home Décor, Fashion Accessories, and packaging

- **Manufacturing and Production:**

Collaborate with textile recycling facilities or yarn manufacturers to source yarn waste materials in bulk.

Establish partnerships with local artisans or community groups to utilize their expertise in working with yarn waste and maximize social impact.

# Creating Surfaces

## Woven Surfaces

Inevitable warp waste is used in weft to create woven surfaces which later can be used in a lot of different things. Since mostly cotton yarn is used in Mangalagiri the surfaces created are Durable as well as well built.

## Crochet Surfaces

Apart from creating woven surfaces the yarn can also be chocheted. Crocheting makes it easier especially to create round surfaces.

One

## Procuring of Waste yarn

Two

## Sorting yarns by colour

Three

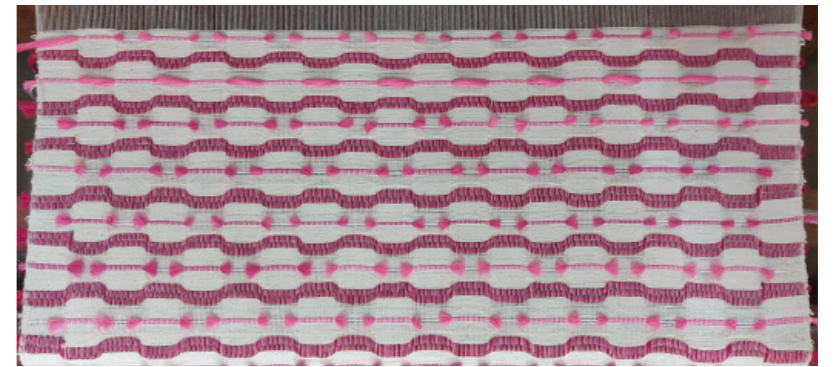
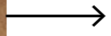
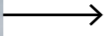
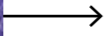
## Untangling the Yarn

Four

## Dividing Yarn into thin strands

Five

## Weaving/ Crocheting





# Crochet Surfaces



# PACKAGING

## WHAT ARE THE ALREDY EXISTING PACKAGING ?

Traditionally Kondapalli toys were packed in a basket woven using coconut leaves, later it has been replaced with simply wrapping it in newspapers due to lack of empyement of people to make them.

For international export as well as bulk orders most of the toys are packed in a newspaper and later put in a cardboard box.

## WHAT CAN BE DONE ?

To create sustainable packaging using the woven surfaces which later can be used as bag as well as utility box.

## WHY ?

- Linking two Clusters
- Creating Employment to the women at home.
- To bring in design intervention in terms of packaging.
- Creating a recognition of this cluster especially in international market.
- Acts as a souvenir.



- Leaf woven basket
- Newspaper
- Cardboard box







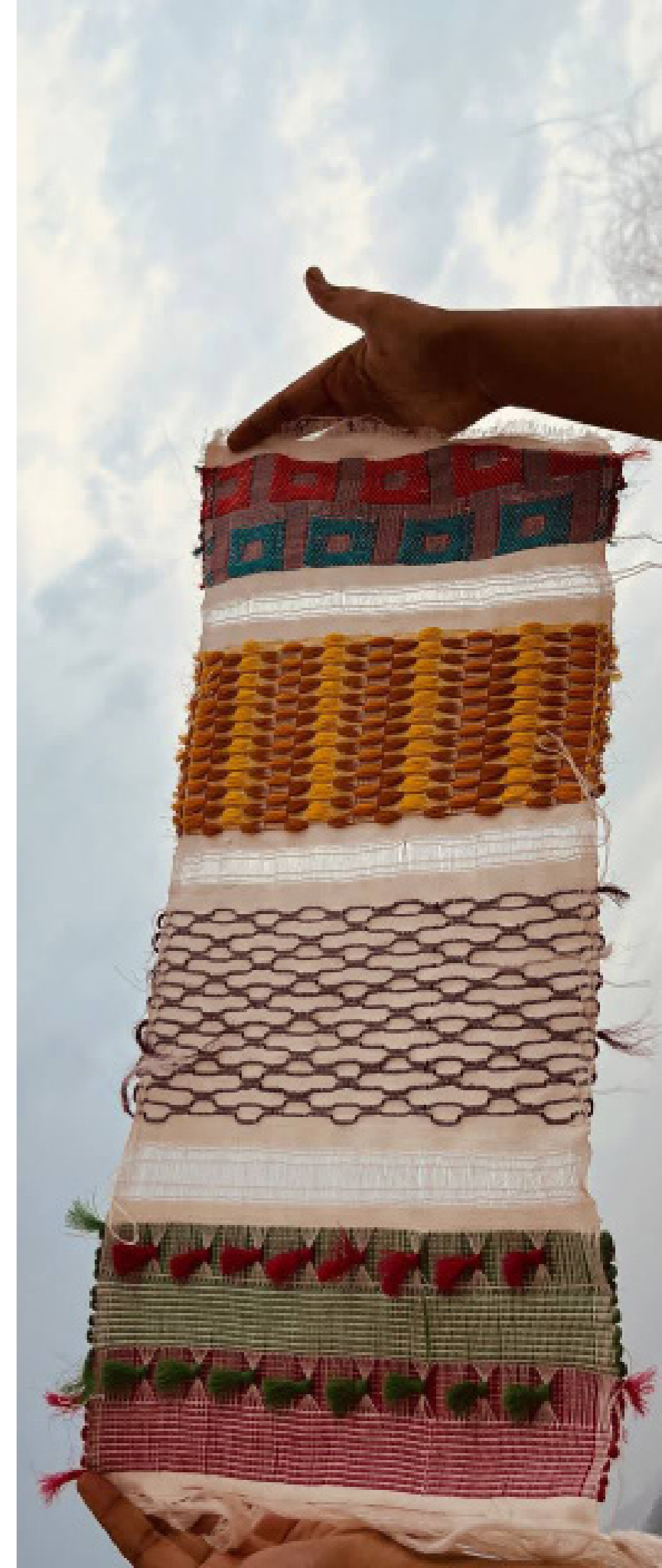


# HOME FURNISHING

- **Cushion Covers**
- **Table runners**
- **Rugs/ Carpets**

It's important to consider factors such as durability, aesthetics, comfort, and maintenance requirements when it comes to selecting fabric for home furnishing and decor.

Cotton is a popular choice for cushion covers due to its softness, breathability, and versatility. It comes in different weights and weaves, allowing for a wide range of designs and textures.





# BAGS & POUCHES

A heavy-duty woven fabric typically made from cotton or a cotton blend is preferred to make bags and pouches. It is known for its durability and strength, making it suitable for tote bags, and utility pouches.

## W H Y ?

- Sustainable, preventing waste from getting into landfills.
- Creating Employment to the women at home.
- To bring in design intervention in terms colour, type of weave, design.
- Creating for a niche market.

## C O N S T R A I N T S

- Colour Length Tangles

## D E S I G N I N T E R V E N T I O N

- To bring in the essence of Mangalagiri in terms of colours
- Intervention in terms of type of weaves, design, aesthetics.





